



Insight  Onsite

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SMARTPUMP Sample Specification
4", multi-tank system

Engineer's specifications for a storage tank fill box with automatic overflow prevention and automatic fill shutoff filling multiple tanks

1.0 Multi-Tank Fuel Filling System

Provide a grade level fuel transfer pumping system with spill containment; overflow prevention and automatic fill shutoff. The MULTI-TANK SMARTPUMP shall be used for filling fuel oil storage tanks. The SMARTPUMP is for use with class II, flammable liquids, those having a flash point greater than 100 degrees F: fuel oil, diesel fuel, and kerosene.

1.1 The SMARTPUMP shall be installed outdoors upon a concrete pad at a location as specified elsewhere.

1.2 The SMARTPUMP shall transfer fuel from a gravity tanker truck to storage tanks via the pump system on-board the unit, as described below. The SMARTPUMP shall permit full draining of the truck delivery hose upon completion of fuel delivery.

1.3 The SMARTPUMP shall include the following fittings and features:

- 1.3.1 Steel, weatherproof, lockable containment box with hinged door finished in Simplex gray with blue doors
- 1.3.2 External, stainless steel ground stud for attachment of delivery truck ground cable
- 1.3.3 4" quick disconnect coupling for attachment of user's delivery hose
- 1.3.4 Inlet shutoff manual valve
- 1.3.5 Motorized valves, shipped loose, one per tank
- 1.3.6 Thermal expansion pressure relief valve, shipped loose
- 1.3.7 15-gallon spill containment sump with drain to pump inlet (handpump on enclosed units).
- 1.3.8 Outlet check valve
- 1.3.9 Outlet shutoff manual valve
- 1.3.10 3" threaded fitting for attachment of outlet pipe to tank.

1.4 The SMARTPUMP shall include a motor driven high capacity fuel transfer pump as follows:

- 1.4.1 Pump: 300 GPM at 55 foot of head, 3600 RPM, cast iron, bronze fitted, carbon-ceramic / BUNA-N mechanical shaft seal
- 1.4.2 Motor: Totally enclosed, fan cooled, rigid base, 3600 RPM, 5 HP, (208/230/460) VAC, 3-phase

1.5 The SMARTPUMP shall include a PLC and 3" HMI controlled system with overflow alarm and shutoff system as described below. The system shall require an external source of AC power, 208/230/460, 3-phase. The control system shall include:

- 1.5.1 TYPE 3R rainproof, lockable enclosure with hinged door
- 1.5.2 4-20mA Level transmitter for installation in the storage tank, one per tank
- 1.5.3 Leak sensor float switch for installation in the storage tank's interstitial space, one per tank
- 1.5.4 Level display reading in Percent and Gallons
- 1.5.5 High visibility notification on HMI: 90% level
- 1.5.6 High visibility red alarm banner on HMI: 95% level



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- 1.5.7 High visibility red alarm banner on HMI: 98% level
 - 1.5.8 90 dB audible alarm horn activated at 90%, 95%, 98% and on storage tank leak
 - 1.5.9 Control power ON/OFF switch
 - 1.5.10 Fill Start/Stop controlled via HMI
 - 1.5.11 Automatic valve closure at 90% level
 - 1.5.12 Override circuit and 30 second timer to permit override of 90% shutoff to allow pump-out of delivery hose or spill containment. 95%, 98% and leak lockout cannot be overridden.
 - 1.5.13 Leak sensor alarm circuit input which activates automatic valve closure
 - 1.5.14 Indicators for:
 - 1.5.14.1.1 Power available
 - 1.5.14.1.2 Fill valve disarm/closed
 - 1.5.14.1.3 Fill valve open
 - 1.5.14.1.4 Tank leak
 - 1.5.15 Tank selection via HMI on multi-tank systems. The fill valve for the selected tank shall be operated by the fill controller described herein. Furthermore, the controller shall be dedicated to the selected tank. Any non selected tank shall have its fill valve disabled and rendered inoperative. The 90%, 95%, 98%, and leak floats are also monitored to prevent inadvertent cross filling.
 - 1.5.16 Transfer pump motor starter with overload relay
 - 1.5.17 Control power transformer for 120 VAC operation of controls
 - 1.5.18 Control power fuses
 - 1.5.19 Remote alarm contacts:
 - 1.5.19.1.1 Summary Tank Critical High
 - 1.5.19.1.2 Summary Tank High
 - 1.5.19.1.3 Summary Leak
 - 1.5.19.1.4 Selected tank Full
 - 1.5.20 Modbus via RS-485
- 1.6 The SMARTPUMP system shall be supplied with manufacturer's warranty.
- 1.7 The services of a factory-authorized or factory based, field service technician to provide start-up services, including inspection, calibration and first operation are available for the SMARTPUMP.
- 1.8 System shall be a Simplex SMARTPUMP, Model "SP-4-(X-NUMBER OF TANKS)" as described above. To be supplied by Simplex, Inc, 5300 Rising Moon Rd., Springfield, IL 62711. 217-483-1600.